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DEVELOPMENT AND VALIDATION OF A SIMPLE RISK SCORE TO PREDICT 30-DAY READMISSION FOR PCI

Oral Contributions

West, Room 2005

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Background: A high proportion of patients undergoing PCI are readmitted within 30 days of discharge. Since these patients are at increased risk of adverse events, we developed a risk score that can identify PCI patients at higher risk of readmission.

Methods: The sample included patients who underwent PCI at a CathPCI Registry®-participating hospital that were linked with 100% Medicare Part A data between 1/2007 and 1/2009. The sample (n=388,078) was randomly divided into development (n=193,899) and validation (n=194,179) cohorts. We counted all readmissions that were not associated with staged revascularization procedures. Multivariable logistic regression models using stepwise selection models identified variables associated with all-cause 30-day readmission. Each covariate with a significant effect and rounded odds ratio (OR) ≥ 1.2 was assigned an integer score based on beta estimates.

Results: The mean 30-day readmission rate was 11.36%. In total, 19 variables were significantly associated with risk of 30-day readmission ($p < 0.05$), and model c-statistics were similar in the development (0.61) and validation (0.60) cohorts. The simple risk score based on 14 variables identified patients at high and low risk of readmission (Table).

Conclusion: Among PCI patients, risk of readmission can be estimated using clinical factors present at the time of the procedure. This risk score may help to guide clinical decision-making and resource allocation for PCI patients at the time of hospital discharge.

Risk Factor	OR*	95% CI	Points	
Age				
(67-68)	1.233	(1.182,1.286)	1	
(69-69)	1.445	(1.380,1.513)	3	
(69+)	1.593	(1.505,1.686)	5	
Female				
Yes	1.265	(1.228,1.303)	2	
BMI				
<=15	1.212	(1.171,1.255)	1	
HF-intervous history				
Yes	1.326	(1.274,1.381)	2	
Previous valvular surgery				
Yes	1.188	(1.079,1.307)	1	
Peripheral Vascular Disease				
Yes	1.227	(1.182,1.274)	1	
Chronic Lung Disease				
Yes	1.496	(1.446,1.548)	4	
Diabetes				
Insulin diabetes	1.399	(1.338,1.463)	3	
GFR				
GFR<30	1.749	(1.629,1.879)	6	
30<=GFR<60	1.204	(1.165,1.245)	1	
Renal failure - dialysis				
Yes	1.56	(1.420,1.714)	5	
HF - current status				
Yes	1.334	(1.280,1.390)	2	
Symptoms on admission				
Nil after 24 hrs	1.16	(1.095,1.229)	1	
EF percentage				
Not measured	1.181	(1.142,1.222)	1	
EF<30	1.528	(1.434,1.627)	4	
30<=EF<45	1.225	(1.172,1.280)	1	
PCI status				
Unopt	1.391	(1.345,1.438)	3	
Emergency	1.525	(1.441,1.615)	4	
Salvage	1.638	(1.295,2.226)	5	
*p<0.001 for all variables with the exception of PCI Salvage (p=0.002)				
Distribution of Score Range and Predicted Probability				

Mean readmission rate=11.36%